Last winter the whole of the lake was frozen over, for the first time since 1814. One fine afternoon, when the air was still, I was skating in the neighbourhood of Shande's Castle, when these mystical guns boomed forth their reports every five or six minutes. On the last day of the skating, when thousands of people from Belfast and elsewhere were assembled in Antrim Bay, there were two fearful boomings, that startled every one near me. They seemed to think some dreadful catastrophe had occurred, as the sounds appeared to proceed from not more than half a mile away. I never before heard them so near. The ice in Antrim Bay remained as it was, but I afterwards learned that it was then breaking up six miles away, but with no alarming sounds. Last February, when the ice of Lough Neagh was breaking up, a strange occurrence took place at Ardmore. A great ridge of ice, a mile and a half long, and 10 feet high, and 15 feet at the base, was formed along the shore during three days. There was a dead calm at the time, so that the ice was not thrown up by the waves. The ice along this part of the shore, for a third of a mile out, was intact; the ridge must have consisted of ice brought from a considerable distance, and forced under the shore ice, which was raised every few yards into small archways, and then shot out from beneath to the height previously specified. The pieces of ice were from half a yard square to bits of an ounce in weight, all mingled in the huge mass. Such a sight had not occurred since 1814, when, as I learned from a member of my congregation, who had seen it in that year, the water of the lake could not be seen from the shore-road on account of this icy obstacle. There are currents in Lough Neagh, but I am not aware of any strong enough to produce such an effect.

W. S. Smith.

Postcript.—In my former letter, an extract was given from Major Head's work, published some fifty years ago, and on again referring to it, I find the following passage:—"The cold increased to a very low temperature, the effect of which upon the extended sheet of ice that covered the bay, was remarkable. It cracked and split from one end to the other with a noise that might have been mistaken for distant artillery." This explains the sound to some extent in winter, but Mr. Smith says that the cannon-like sounds may be heard at any time of the year. This requires explanation.

C. T.

In your issue of November 14 last, Prof. McKenny Hughes appears to favour the idea that the curious sounds heard near the shores of Morecambe Bay, are due to the waves breaking "on the long, flat shore" thereof. I heard these sounds on Saturday, December 21, and could trace them to blasting operations near Carnforth. I heard them between 9.15 and 9.30 a.m., and the *tide was quite out.* So the "very suggestive coincidence" between the Bays of Bengal and Morcambe loses point! Further, it is seldom that the waves break at all, or even "curl over" on the shores of Morecambe Bay, where it is flat; but the water simply overflows the banks of the channel of the river Kent, whose course is followed by the tidal wave. There are limestone quarries at or near Arnside, Silverdale, Warton, Carnforth and Borwick.

O. Firth.

Hawthorn House, Baildon, Yorks.

Charles Darwin, in his "Naturalist's Voyage round the World" (new edition, 1890, p. 346), describes some curious earth-sounds heard in Northern Chile; he also gives references to Seetzen and Ehrenberg as authorities for the occurrence of similar sounds on Mount Sinai, near the Red Sea.

It is stated that the phenomenon is caused by sand in motion.

William Stoney.

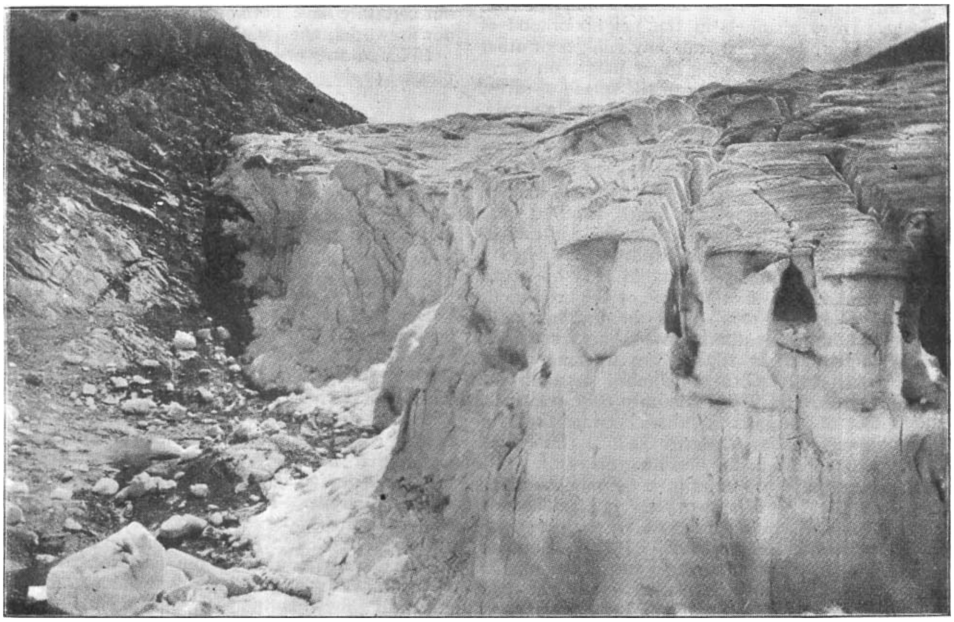
Civil Service Club, Capetown, December 4, 1895.

The Merjelen Lake.

The annexed illustration is reproduced from a photograph taken by me on August 16, 1890, when the lake was empty. How long it had been so, or how long it continued, I cannot say. So far as my memory serves me, there was no water whatever in it, and I distinctly recollect noticing the icebergs lying high and dry on the bottom. I walked along what had been the margin of the lake on my way to the Aletsch glacier, which I ascended to the Concordia Hut. I hope the photograph may be of interest to Dr. Preller, and others who know the lake.

Greenwood Pim.

Co. Dublin, December 19, 1895.



The Metric System.

I note a call from Mr. John W. Evans, in Nature for December 5, 1895, for the use of the metric system in meteorology. If this means the substitution of the metre for the yard, there can be no serious objection except this. In meteorological studies ·01″ of air pressure is an extremely convenient limit, and in most inquiries only two figures are needed. On the other hand a millimetre (·04 inch) is altogether too large a limit, and one-tenth m.m. is too small. The labour of writing, averaging, and studying with the metric scale will be at least one-third greater than with the common inch scale to the same degree of accuracy. It is a very great pity that the French, in looking

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for a convenient length to divide into a thousand parts, did not take up the already existing yard, which is nearly the same as the metre. Yard ÷ 1000 = (metre ÷ 1000) − ·004 inch. The amount of confusion that would have been saved is almost incalculable.

The metric system usually carries with it the Centigrade scale on the thermometer, and here the whole English-speaking world should give no uncertain sound. I am not contending for any scale in chemistry or geology, but in meteorology it would be difficult to find a worse scale than the Centigrade. The plea that we must have just 100° between the freezing and boiling points does not hold; any convenient number of degrees would do. The Centigrade degree (1°·8 F.) is just twice too large for ordinary studies. The worst difficulty, however, is in the use of the Centigrade scale below freezing. Any one who has had to study figures, half of which have minus signs before them, knows the amount of labour involved. To average a column of thirty figures, half of which are minus, takes nearly double time that figures all on one side would take, and the liability to error is more than twice as great. I have found scores of errors in foreign publications where the Centigrade scale was employed, all due to this most inconvenient minus sign. If any one ever gets a "bee in his bonnet" on this subject, and desires to make the change on general principles, it is very much to be hoped that he will write down a column of thirty figures half below 32° F., then convert them to the Centigrade scale, and try to average them. I am sure no English meteorologist who has ever used the Centigrade scale, will ever desire to touch it. It is much easier and safer to convert the Centigrade scale to the Fahrenheit before any studies are made. As a matter of fact, European temperatures are a sealed book to active workers in meteorology on account of this unfortunate scale.

England and the United States may congratulate themselves, however, in the fact that European meteorology is almost flat. There are no low area or high area systems moving with regularity at any definite speed or in any definite direction, such as are experienced in the United States three or four times in a month. The rains in Europe are mostly sporadic, and do not accompany any well-defined low areas.

If any change is to be made, cannot the meteorological world come together upon a thermometer having its zero at −40° both Fahrenheit and Centigrade. This would be a most convenient scale, and would eliminate nearly all minus signs. The conversions from the old to the new would be very convenient by simply adding 40° to each. The conversion from the new Fahrenheit to the new Centigrade would also be extremely convenient by dividing by 1·8 instead of the present very puzzling system, and *vice versa*, Centigrade degrees × 1·8 would give the Fahrenheit value. This would obviate the difficulty of the minus sign, but there would still remain the fact that the Fahrenheit degree is by far better than the Centigrade.

Washington, D.C., December 18, 1895. H. A. HAZEN.

Apparatus for determining the Specific Gravity of Minute Fragments of Minerals.

THIS is a contrivance designed to facilitate the measurement of the specific gravities of minute fragments of minerals by means of a diffusion column of methylene iodide, as described by Prof. Sollas in NATURE, vol. xliii. p. 404, and vol. xlix. p. 211. There is no new principle involved in the construction of the instrument. It is merely the adaptation to this particular purpose of a well-known device for getting rid of the error due to parallax, such as is employed in Prof. Joly's spring balance for determining specific gravities, and the best form of tangent galvanometer. The index, which in this case is a fine wire, or fibre of any kind, is reflected in a mirror placed behind it, the coincidence of the fibre and its reflection showing that the eye of the observer is exactly on a level with the index.

In the drawing, *a* (Fig. 1) is a test tube containing the methylene iodide column in which the fragments of mineral under observation are immersed, together with two or more beads or fragments of mineral whose specific gravity is known. This is held by a clip, *b*, in a slot cut through the upper end of a thin piece of wood, some 12 inches high, fixed vertically to a firm base, so as to bring the test tube and its contents to a convenient height above the table. A slip of mirror, *d*, carrying a scale, *e*, divided in millimetres or any even graduations, is fixed vertically at the side of the slot, and the fibre is carried by a slider, *c*, which is shown separately in Fig. 2. This may be made of a strip of thin sheet copper, and has a "window" cut through it at *b*, so that the contents of the test tube may be seen.

The readings are taken by bringing the fibre successively on a level with the approximate centre of gravity of each fragment, and noting the division of the scale cut by it, taking care that it coincides with its reflection in the mirror at each reading. The instrument might be improved by making the scale movable through a short distance vertically, so that one of the larger divisions of the scale might always be brought on a level with the uppermost of the beads or fragments used as indicators. The whole thing may be made at a cost of less than a shilling. It has been tried in the geological laboratory of the Royal College of Science for Ireland with satisfactory results.

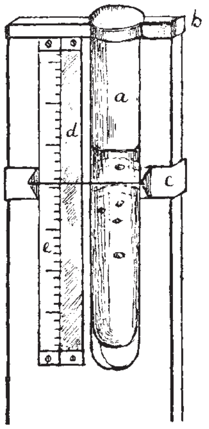

FIG. 1.

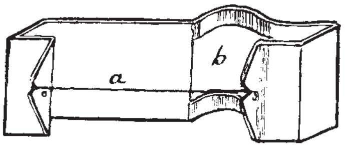

FIG. 2.

T. D. LA TOUCHE.

Cactaceæ in the Galapagos Islands.

MR. HEMSLEY is mistaken in stating, as he does on p. 623 of NATURE for October 24, 1895, that Dr. G. Baur was attached to the U.S. Fish Commission Steamer *Albatross*. Dr. Baur had no connection with the *Albatross* Expedition of 1891, the object of which was deep-sea dredging, and only included an incidental visit of a few days to the Galapagos. Nor did Dr. Baur write the general sketch of that expedition, or have anything to do with the photographs which accompany it, as one might infer from a subsequent note by Mr. Hemsley on the Cactaceæ of the Galapagos (NATURE, November 14, 1895, p. 31).

As regards the Cactaceæ of those islands, I collected branches of *Opuntia* and of *Cereus* from Chatham and from Charles Islands; what became of those pieces I do not know, as they do not seem to have reached the hands of Dr. J. N. Rose, who described the plants collected at the Galapagos by the *Albatross* Expedition.

Mr. Hemsley will find that both Dr. Wolf and myself state that *Cereus* grows to 20 feet in height. Dr. Wolf also called attention to some striking differences he had noticed in the specimens of *Opuntia* and of *Cereus* he found on the different islands.

In stating his position, botanically speaking, regarding Dr. Baur's theory of the origin of the Galapagos, Mr. Hemsley would surely not give us to understand that *Opuntia* and *Cereus* are limited to Chili on the west coast of South America, as his second note (p. 31) seems to imply. ALEXANDER AGASSIZ.

Museum of Comparative Zoology, Cambridge, Mass.,
December 2, 1895.

[MR. HEMSLEY admitted, in NATURE of November 28, 1895, that he was in error in thinking Dr. Baur was attached to the U.S. Fish Commission Steamer *Albatross*.—ED. NATURE.]

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